6. INTERSITE COCHANNEL ANALYSIS BY THE TABLE METHOD. If only cylindrical standard FPSV's are considered, the figure 9 may be used to assure the 14 dB D/U ratio.

FIGURE 9. MILEAGE SEPARATION TABLES FOR USUAL FPSV'S

FACILITY TYPE	SERVICE RADIUS (Desired)		ACFT TO ACFT SEPARATION (Critical Points)	TOTAL REQUIRED
HE/SE	150	+	525*	675 + R
IE/LE/AC/DC	60	+	300	360 + R
LC/HC	30	+	150	180 + R
PAR	15	+	75	90 + R

Note: "R" is the service radius in nmi of the competing facility.
* Separation modified by RLOS.

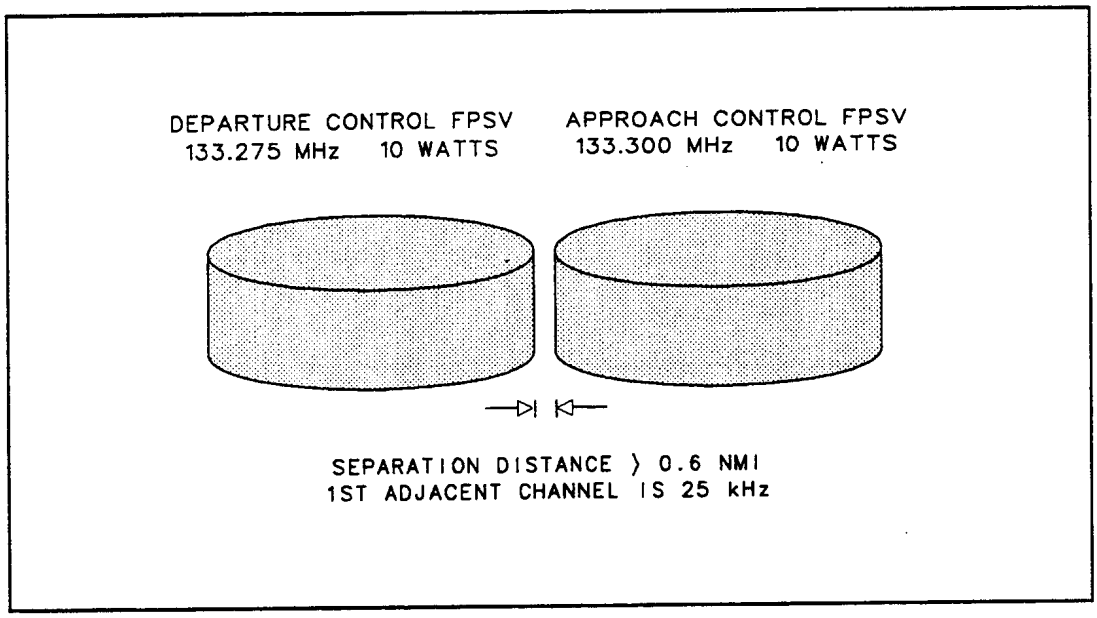
7. ADJACENT CHANNEL CONSIDERATIONS. Adjacent-channel signals 25 kHz away are suppressed approximately 60 dB by the bandpass characteristics of the 720 channel receiver. A +14 dB D/U ratio is required on-channel, leaving a net ratio of -46 dB, the value that an adjacent channel signal must not exceed on-channel to maintain the +14 dB D/U ratio. Empirical tests have shown that between 0.5 and 0.6 nmi separation between the undesired signal source and the desired critical point will provide this protection.

a. For en route functions, AT procedures require aircraft to be separated 3 nmi, so that an adjacent-channel aircraft will never be closer than the minimum distance required.

b. For terminal functions, aircraft can be much closer, so that a small worst-case protection is required. Any separation greater than 0.6 nmi between edges of adjacent channel FPSV's will provide adequate protection as may be seen in figure 10.

c. 2nd adjacent channel assignments need no consideration in intersite analysis.

FIGURE 10. 1ST ADJACENT CHANNEL SEPARATION REQUIRED



8. INTERSITE COCHANNEL ANALYSIS.

a. To determine the DR of any critical point, first determine if d_U is beyond RLOS using the formula in paragraph 4b. The d_U for this RLOS criterion is the shortest distance between the two cochannel FPSV's. If d_U is beyond RLOS, the DR will be greater than 14 dB for both FPSV's. When both cochannel FPSV's are cylindrical and the transmitters are in the center of the FPSV's, the worst- case DR is where the d_U is the shortest distance between FPSV's and d_D is the cylinder radius. The configuration is shown in figure 8 and the calculation of DR is shown in paragraph 5d, above.

b. When the transmitter is not at the center of the FPSV or the FPSV is tailored and not cylindrical, the worst-case DR can occur when d_U is not a minimum and d_D can be the maximum distance between the transmitter and the perimeter of the FPSV. An example of a calculation for a noncylindrical FPSV is demonstrated in figures 11 and 12. The d_U for the worst-case DR for the cylindrical FPSV1 is the minimum distance between FPSV's which is shown as 226 nmi. The worst-case DR would then be 226 nmi divided by the 30 nmi radius or 7.53. FPSV1 thus passes the DR criteria as the DR is greater than 5. The d_U for the worst case DR for the noncylindrical FPSV2 occurs where the d_U is about 330 nmi. With d_D being 65 nmi, the worst case DR for FPSV2 would be 330 ¸ 65 or 5.08. FPSV2 passes the DR criteria. It is important to consider that <u>all</u> points on a TSV must be checked when using the DR criteria.

c. In this example, a common channel frequency can be used. If either FPSV1 or FPSV2 fails the DR = ³5 or 14 dB criterion, then the same frequency cannot be use for both FPSV's. Since the new facility FPSV2 is not a cylindrical FPSV, the worst-case situation is not an "in-line" function. The worst-case DR must be determined by direct map measurement as shown in figure 12. FAA's automatic A/G computer model does the

calculation for cylinders or equivalent cylinders with off-center transmitter locations. (NOTE: The AFM uses actual TSV points to calculate DR if the TSV option is selected.) An equivalent cylinder to a TSV can be overprotected by the computer model and should be further checked by direct map measurement if it fails the computer model's DR.

FIGURE 11. COCHANNEL ANALYSIS BY CALCULATION

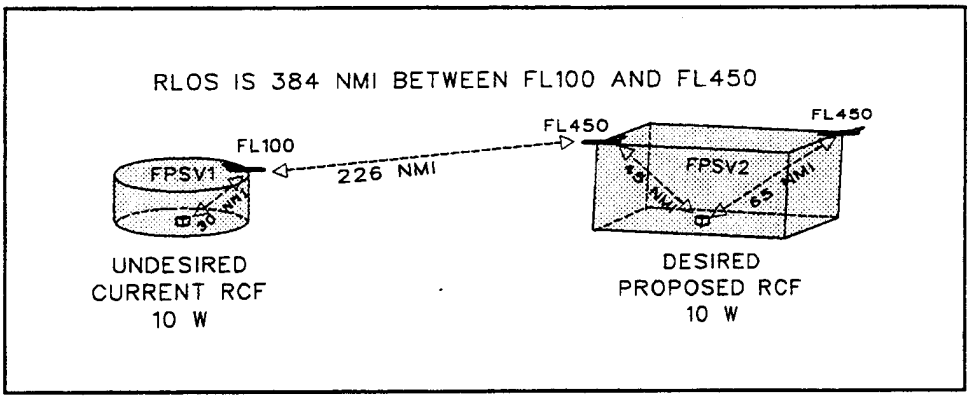


FIGURE 12. COMPARISON OF D/U AND DISTANCE BETWEEN FACILITIES WITH ONE TAILORED SERVICE VOLUME